1. Water Quality Monitoring Wells.

The POC and outer OWs shall serve as water quality monitoring wells beyond the Project wellfield for this permit. In addition, selected injection or recovery wells shall be converted to monitoring wells for water quality monitoring and verification during the rinsing and post-rinsing monitoring periods referred to as rinse verification and closure verification wells. RVW and CVW locations shall be established in accordance with the Wellfield Closure Strategy in Appendix F of this permit. The proposed HC, POC, and water quality monitoring well locations are depicted in Figures A-7A and A-8 of Appendix A, ~~Table~~Figure H-2 of Appendix E, and Table P-1 of Appendix I, and are described in Table P-1 in Appendix I. The proposed IMWs, observation, and hydraulic control well locations, stage ~~of~~ 2, operation, and activation sequence are listed in Tables 2.5-1, 2.5-2, and 2.5-3 in Appendix A. The proposed activation schedule and sequence for those wells is preliminary and subject to later revision and EPA review and approval as ISR operations for each mine block proceed in Stages 1, 2 and 3.

In addition, any POC wells established for monitoring the effects of injection and natural groundwater movement within the Project AOR, pursuant to a final Aquifer Protection Permit to be issued to the project by the Arizona Department of Environmental Quality, will also serve as water quality monitoring wells for this permit. The water quality monitoring well designs are shown in Figures M-4 and M-5 in Appendix B.

The three proposed HC wells (HC-2, HC-3, and HC-4) located at the southern AE/AOR boundary as depicted in Figure 52 and A-13 (Appendix A) shall be installed prior to commencing ISR operations in year one (1). The Permittee shall monitor specific conductance (SC) and water levels in the three inactive HC wells at the southern boundary and designated IMWs for alert levels daily. Electric logs shall be run in these wells for baseline electrical resistivity and conductivity profiles in the open hole interval in addition to the other required geophysical logs. Groundwater samples shall be collected for analysis of SC and other Level 1 indicator parameters at least once per month for at least the first year in the HC wells as a backup and comparison to the daily SC monitoring. ~~Purging of wellbore fluids (3 wellbore volumes) shall be required before collecting samples of water in the HC wells for SC and other Level 1 parameter data.~~ The SC and water level monitoring in the outer IMWs will serve as an early warning system, which will trigger increased extraction rates from the mine block or existing HC wells at the eastern boundary or activation of more HC wells at the eastern boundary if necessary to regain HC at the southern boundary.

In the event of a verified exceedance of SC levels detected by ~~transducers~~specific conductance probes or by sampling in the HC wells at the southern boundary, contingency actions shall be implemented immediately ~~to correct the apparent loss of HC and excursion.~~ A verified exceedance will require activation of pumping at the HC wells and installation of the three OW pairs, as soon as possible, for inward gradient monitoring and SC monitoring in the outer OWs at the southern boundary.

The Permittee shall install at least three additional ~~OW pairs~~HC wells at the eastern boundary prior to commencement of ISR operations in year 1~~, including the proposed OWs 15-I and~~

~~15-O associated with HC-15 and the OWs associated with:~~ HC-10, HC-13, and HC-19 as depicted in Figure A-7 and listed in Table 2.5.2 in Appendix A. ~~Installation and~~In the event of a verified exceedance of SC levels detected by specific conductance probes or by sampling in these HC wells at the eastern boundary, contingency actions shall be implemented immediately. A verified exceedance will require activation of pumping at the HC well and installation of the associated ~~HC wells may be deferred if an~~OW pair, as soon as possible, for inward gradient ~~is maintained at or above 0.01 ft./ft, between the OW pairs and SC does not exceed alert levels~~ monitoring and SC monitoring in the outer OWs~~.~~ at the eastern boundary.